



Genetic control of the resistance of common beans to white mold using the reaction to oxalic acid

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ABSTRACT. The use of genetically resistant cultivars is the best method to reduce losses caused by white mold (*Sclerotinia sclerotiorum* (Lib.) de Bary). As the best known resistance sources are not adapted, the genetic control of white mold in the common bean must be understood to guide breeding more efficiently. The objective of the present study was to identify the genetic control of the resistance of common bean to white mold by an indirect method using oxalic acid. For this, the descendents of the VC3 cross (susceptible) x G122 (resistant) were used. The trait was assessed by a descriptive key of scores after treatment with oxalic acid. The assessments were made on individual plants (P_1 , P_2 , F_1 , F_2 populations and within $F_{2:3}$ families) in a complete randomized design and on family means where the randomized block design was used with two replications. The oxalic acid method was efficient in detecting genetic differences. The additive effects dominated and genetic control was characterized by partial dominance ($d/a = 0.47$). At least one resistance gene is involved, although the trait is greatly influenced by the environment. The broad sense heritability at the family mean level (0.47) was greater than that obtained at the individual plant level (0.33), indicating that selection should be more efficient based on progeny mean assessments.

Key words: *Sclerotinia sclerotiorum*; *Phaseolus vulgaris*;
Oxalic acid; Physiological resistance